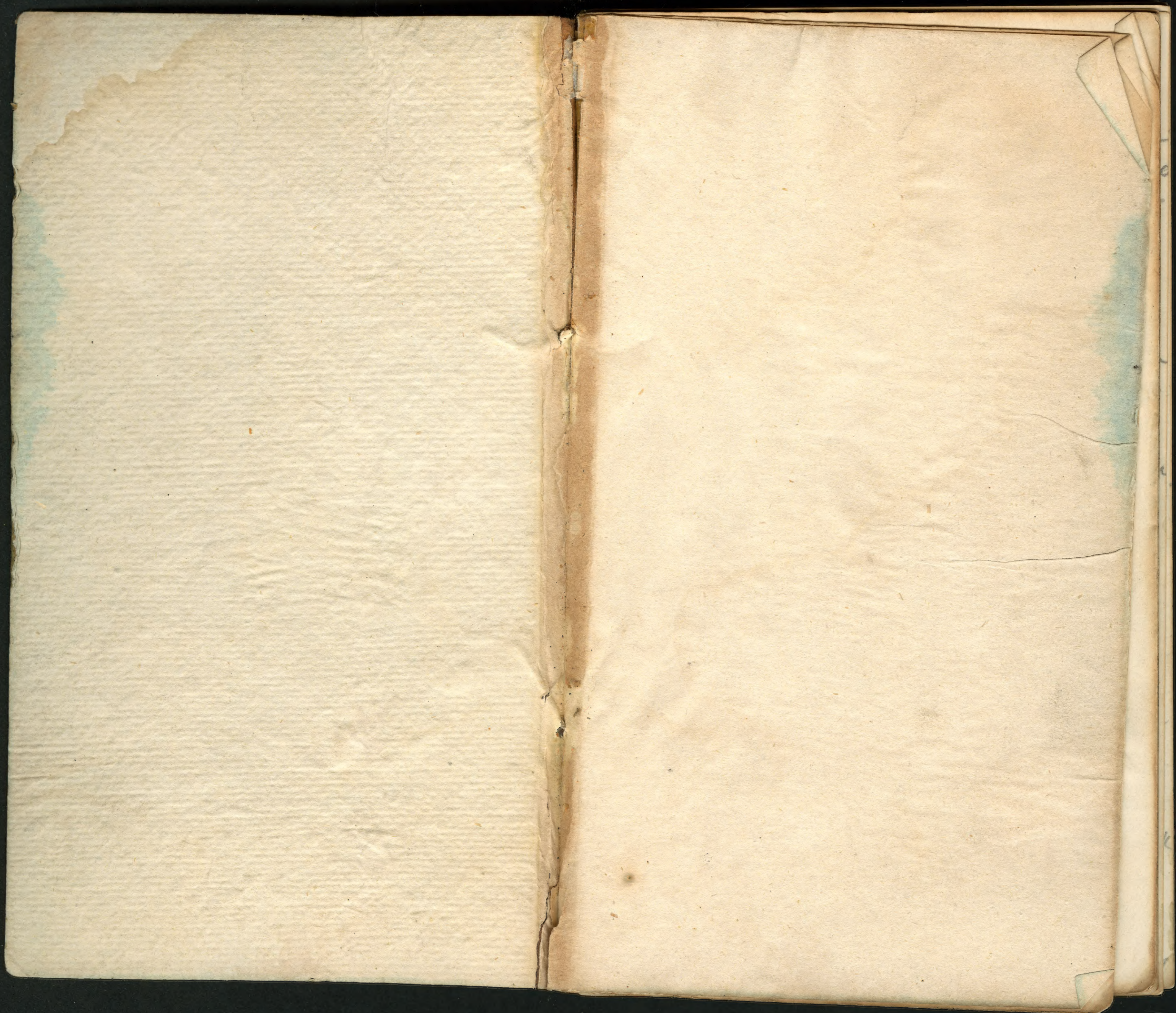


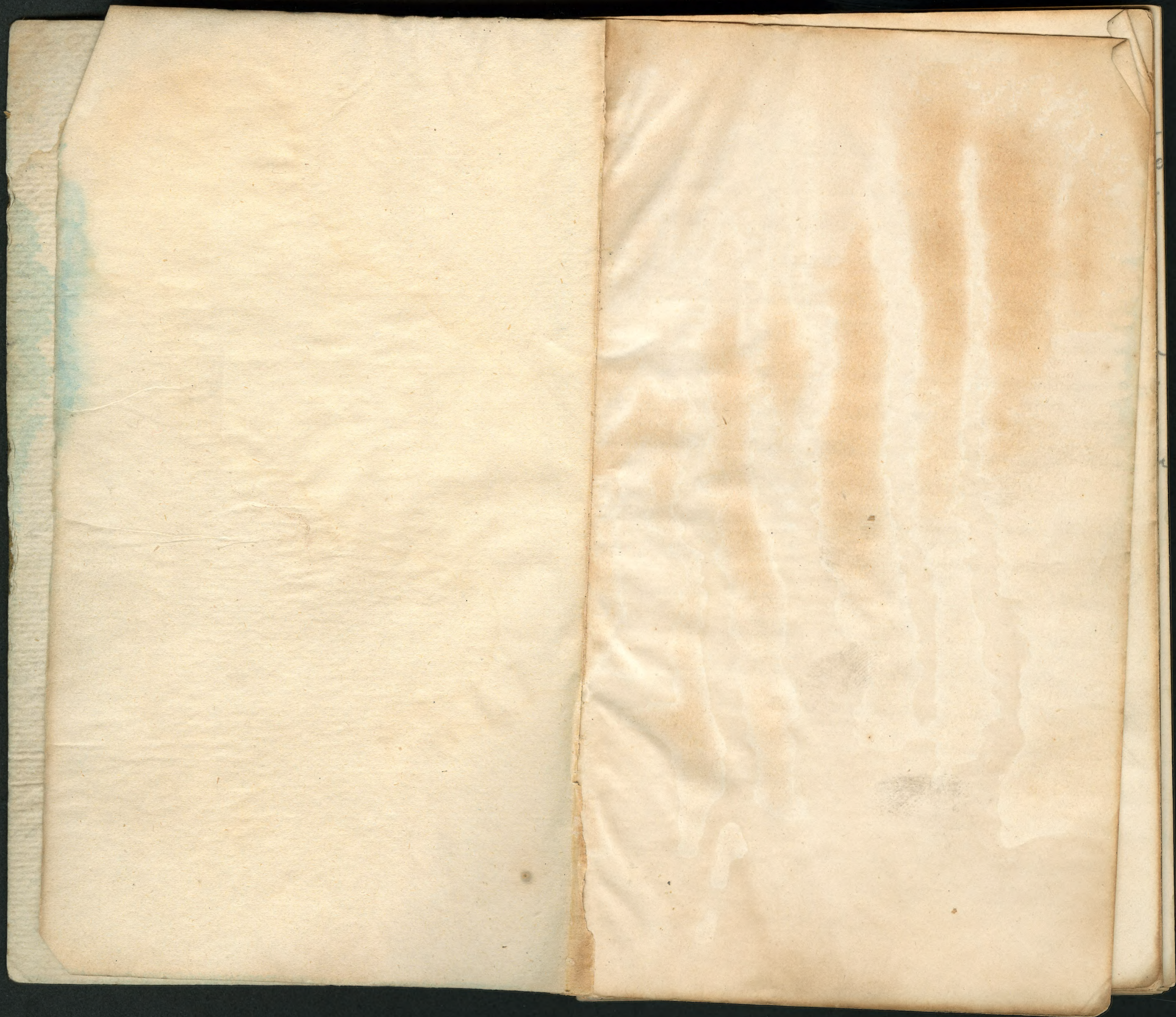
Notes.

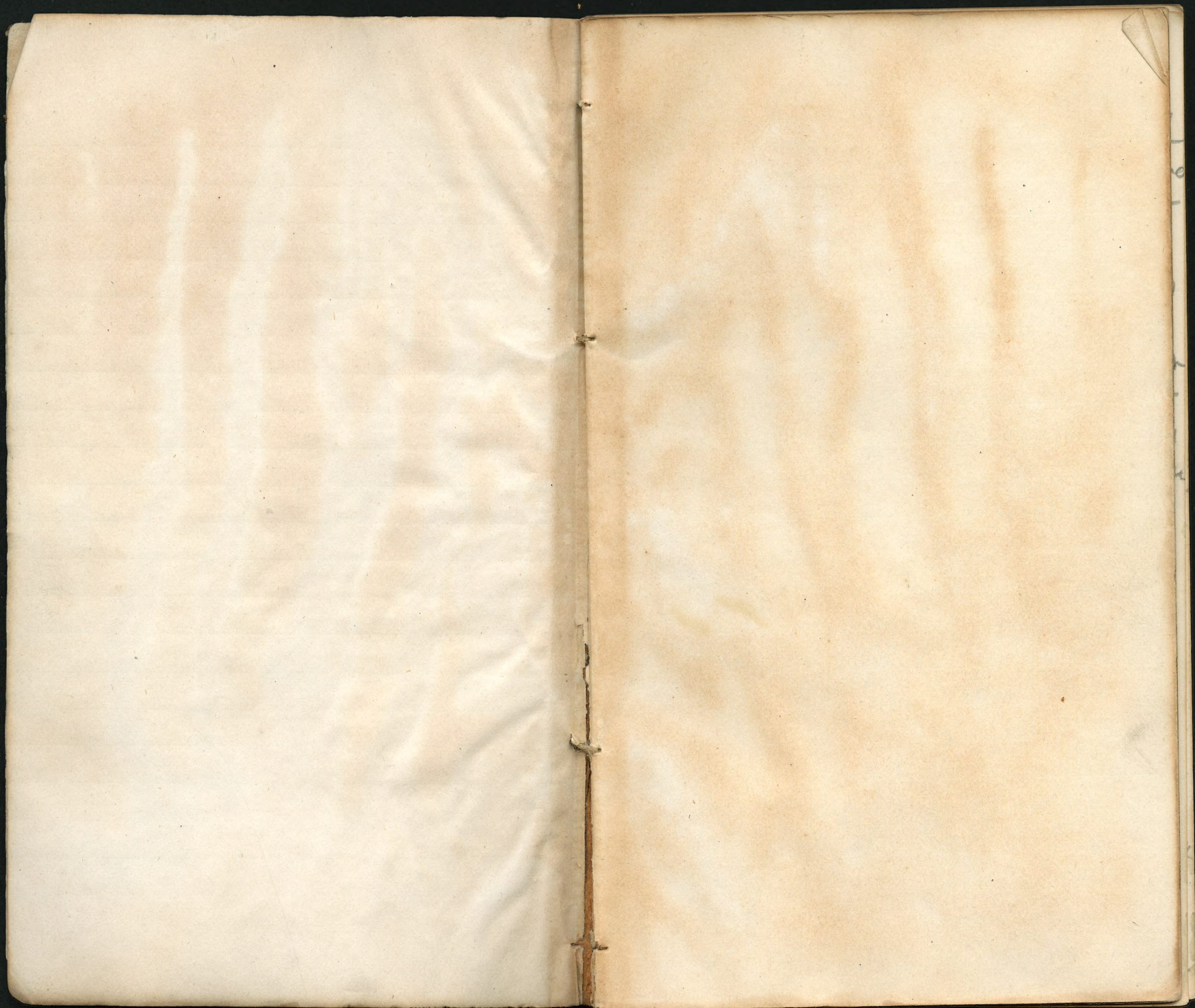
1871.

W. H. Dall.

U. S. C. S.









Salpa, nucleus the remainder pellicle
 and single row of tentacles around mouth
 and muscular bands. - I fill a little
 twisted rectum passing forward and
 then back toward post. opening.
 Notochord clear, distinct, with a ves-
 sel running above it

Wednesday & Thursday Sept 6 & 7
 1871. Set trawl net and
 got in P.M. several Atlan-
 tas of two species which I
 have drawings of, made in
 1865. P.M. Set a few
 Salpas and Cleodoras.
 Night, got a large number
 of Atlantas, a Salpa above

described, a number of small
crustacea, one with an orange
mass dotted with scarlet, in
the thorax two or three small
carinarias with the parts about
the mouth of a brilliant scarlet,
the intestinal canal wine color
or nucleus lined purple.

Above in bottle No 1, Lon 141
Lat 41 N. P.M. Get a few
Hyaleas and salpas, a curious
fish and a feather covered
with fish eggs - Sept 7 bottle 2

Sept. 13, Lat. 47, Lon. 148° 30'

See two fur seal playing in the
water. Many Relican today &
yesterday.

Sept. 14, Lat 48° 37' Lon 15° 20'
3'.

A small land bird
a Passerulus with the brown
in well defined streaks, the
four streaks on the head
very yellow, and extending

P. sandwichensis

well back. with ^{plush} red feet
flew around the vessel
and lighted on deck today
The species is I feel quite
sure the same which I
called *P. savanna* in my
Alaska Catalogue. The
nearest land is five hun-
dred and fifty miles off
the wind N.W. not very
strong but has been blow-
ing harder. After some
trouble secure the bird and
put it in a cage pro tempore
Skin + sternum No. 3 —

Another land bird alighted on
the ship in the evening
but flew off again and
was not recognized in
the darkness. Saw several
gulls or *Procellariæ* during
the day. Sept. 15 a small
blue fish with a double

row of peculiar punctures
on the abdomen was wasted
on board, put it in bottle
no. 2. No. 4.

Observing the flight of the
gull, *Diomedea nigripes*,
I notice that its ordinary
method of sustentation when
there is a breeze, consists
of rising against the wind
and falling with it, this
being kept up sometimes for hours
with hardly a single stroke
of the wings. It rises only
against the wind except in
rare cases when its de-
cending momentum is
sufficient to raise it slight-
ly for a short distance, or
when the reflex eddy from
a high surge is strong en-
ough to give it a slight
lift. It uses its broad webbed

feet to some extent in balancing itself when turning with the wind, also by poking them down at a right angle with the body to check its course especially when alighting on the water. Generally while flying they are stretched out behind with the webs extended and assist the bird materially in guiding itself, the tail being shorter than the extended feet. It rises by extending its wings and running against the wind over the water until it is sufficiently raised above the water to use its wings without wetting them. A flock of four or five have accompanied us from California so far but will probably soon leave

us, as I have noticed that they do not go north of the Aleutian Islands.

Their eyesight is exceedingly acute, they can distinguish a discolored spot a yard across, in the water, from a distance of at least ten miles, ^{and even} much further than our unaided eyes can see the bird itself.

Its flight in calm weather consists of a series of about five or six short sharp strokes at intervals of a second or more ~~apart~~ followed by a short period of comparative quiescence.

They left us in Lat 53° N.

Sept 21.

Sounded in Lat. 53.10 Lon 163.35 nearly NE end of Izalda bearing NW $\frac{1}{2}$ W true 64 miles 112 fms no bottom

Temp. water at surface 48°
Sept 22. Move to at 5.30
Akutan volcano bearing
N by W, by compass and
Old Harbor NW do soundings
getting 110 fms soft muddy
bottom, Temp. at surface 49°
Sept. 24. See at Mr. Bendel's
house several Buccinum and
Pecten, Rhynchonella, Margarita
with a very open umbilicus
different from any species I
have ever seen and a
number of other shells.
Get several Pectens out
of a flounder. Pick up
a large Cardium Nuttallii
on the beach. Get some
mussels with Collisella
patina attached to them
fish over the side of
the vessel and catch a
codfish three flounders

of the scaly kind a small halibut, and a skate with brownish olive back white belly, small stellar spiculae scattered over the back a row of recurved spines in the median line of the back and 2 moderately large anterior and one small posterior dorsal fin near the end of the tail which was simply pointed. ~~Save the skull and~~ teeth was 5.

Harrington gets a number of flowers and a 5 rayed star-fish & some parasites from the cod.

Sept 26. see *Cardium edentulum*, *Saxidomus squalidus*, *Purpura saxicola*, *Collisella patina*, *Tapes staminea*

like flower bay mes made
with whale ribs -

Blue berries & salmon berries
abundant on hills -

Harrington gets a lot of
sand fleas & flowers -

Sept. 29. Get a very pretty
specimen of Tapes - Draw
the same in the P.M. and
get a beautiful little brown
sculpin with gold-colored
spots and a few other small
fish. also an humble bee of
large size. See several

Macoma's and a Volutharpa
anpullosa on the beach -

Cardium Nuttallii abundant -

Sept 30. Harrington goes fishing
and catches several species
of salmonidae one a brook
trout -

Oct 1. Search the hillsides
& get a few beetles, a

leech and some small
land shells, Pupilla, Vitrina
Succinea &c. - also a few
diptera

Oct. 5. Mr. Bendel sends
us a red fox ²⁷ and some
ducks, apparently, Nettion
^{carolinensis} ~~stercora~~ ²⁴ Harelda ²² glacialis,
Histriomus ²³ iniquatus
and Lamprolaima (21) Fische
i? all in autumn plu-
mage. They are badly
torn & bloody but I
preserve the skins to
identify the species.

Oct. 9. Go to Captains Har-
bor and Lake Farycheff
to examine the reported
amber locality. - To find
the rocks south & east of
Captains Harbor to be all
masses of Gneiss ⁹⁻¹⁰ with a
perpendicular dip. and

cleavage planes in every direction in mountain masses 800 to 2000 ft. high. Ascent some of these and find nothing but syenites in every direction overlaid conformably by thin beds of clay & sand with hydrated peroxide of iron in some places at very superficial & very recent formation containing decayed leaves of grass & other vegetation of recent origin. These clay beds were insignificant in extent and limited to small depressions in the mountain tops. Found the so called Amber Lake which was a small pond on top of a syenitic mountain about 2000 ft above the sea - No signs

of any tertiary deposits.
There were three lakes -
one discharging into Lake
Sary cheff and another
into the third which em-
ptied on the other side of
the divide apparently in
to Beaver Bay - Returning
find the high bluff on the
west side of Lake Sary
cheff to be conglomerate (6)
in beds nearly horizon-
tal and very distinctly
marked on the out crops
Height above the lake
2000 ft. ^{covered with hard altered sandstone black + bluish.} Natives here
burn huckleberry bushes
+ small willows for fuel
green - more more than an
inch in diameter.

Oct. 12. One of the Aleuts
brings in six or eight Anas
boschas and a green wing

teal while Bendel sends
me a *Mareca americana*^{penelope} ²⁵
The ducks are just beginning
to come.

Pickup some fine *Cardium*
a *Mactra*, ~~*Tectaria*~~ *Macoma*,
Mya truncata and a frag-
ment of a *Machæra* on
the beach.

Oct. 14. Get some shells
and codfish ¹¹⁻¹⁷ skulls on
the beach. Mr. Hodgkins
gets some small fish in
the seine and sets it for
herring.

Mr. Bendel kills a small
ot wren (no 26) which
I preserve though in bad
condition.

Oct. 17 Mr Bendel brings
in 2 *Melospiza insignis*, (32-3)
2 owls, ⁽³⁰⁻³¹⁾ a mallard & green
winged teal.

Oct. 18. Mr. Bendel sends me
two specimens of *Hydrobata*-
(28 29 + sternum). looking like
mexicana-

Oct. 19. Harrington goes out
with the gun & kills a
young gull () three
melospiza (34-5-6 + sterna)
and two sandpipers (37-8
+ sterna) getting also some
few shells & insects - and
some small fish ()
out of the quills crop -

Oct. 22. Go out with my
gun & succeed in getting six
wrens probably *T. alascensis*-
(nos 94-8-100) also a
number of shells & the
young of a buccinoid in
the oolite capsules sometimes
one & sometimes three in
one capsule the shell con-
taining three or four whorls

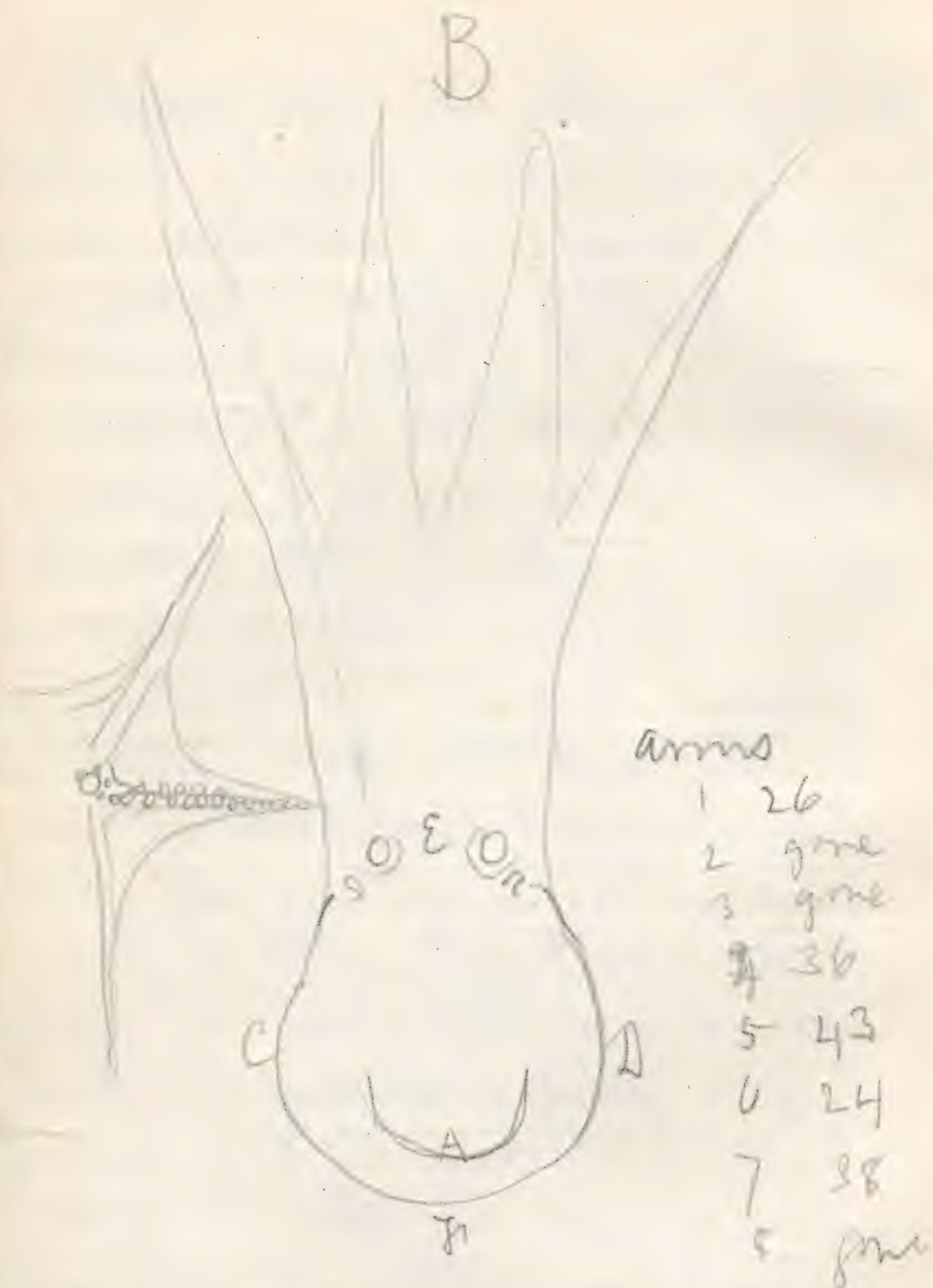
The islands east of Kyska
are too far south. there
is also a reef not laid
down on the charts -
St. Paul + George are 16
miles too far east on the
charts

"Phoca" equestris is common
on the Asiatic coast and
also around Bering Island
comes as far east as this
mark in winter and has
been killed in Unalaska
on one occasion.

There is said to be an ancient
village in Adak with the
utensils masks &c laying
as if yesterday abandoned
the Adka men know where
it is & can be taken with
their single bidarks to find
it & return by themselves
There is native copper

to be found in Unnak.
A Japanese junk with
three sailors drifted ashore
on Adakh after being nine
months at sea, dismasted
& under lost by a typhoon
when found by a hunting
party of Aleuts. They had
15 lbs of rice left a lot of
paper money to buy cargo
with at the port to which
they were bound & some iron
cash & had torn up their
deck for fuel. They go
down by the Hutchinson
in a few weeks. They
had nothing but a small
compass, no chart or
other assistant to navi-
gation.

Oct. 23. Capt. Partridge gives
me a Hydrobata ♂ (no 49)
which he has just shot.



A B. 55 in
 C D. 17 "
 A E. 13 "
 A F. 5 in

Get a few things from a
 cast of the dredge off Rock
 y point especially a few
 small & curious crustace-
 ans. P.M. Find some doll
 and ascidians, Sertularia etc
 on a piece of kelp near
 Barleys Δ.

Oct. 24. Get on the beach a
 mutilated specimen of what
 appears to be a species of
 Pinnoctopus, it measures,
 2 Rows alternate suckers about
 50 in number as far as
 visible, largest $2\frac{1}{2}$ in across
 Color white ocellated with
 smouches of brick red in
 dots. Rapt on the under
 edge of arms & moving in
 by a web between them which
 is 7 inches broad at right
 Eyes black 5 in between
 them & a rounded papilla
 just behind



The body was bag shaped with a
a broad (3 to 5 in) flap all
around it with no notch
+ wider behind. A careful
search revealed no assides.

The intestines contained
long milk white coils ap-
parently part of the organism
also some cylindrical
pellucid yellow things looking
like intestinal worms -

Preserve these, also the
jaws, the radula was lost
and one of the suckers

(No 102/50)

Get a few ¹¹³ shells and some
sandpipers (Nos. 105-109)

Oct. 25 - Dredge in the P. d.
got a good lot of shells but
notice the absence everywhere
of the smaller species. Preserve
most of them in alcohol nos
113 - 132.

Oct. 26. get a few shells &
codskulls on the beach also
some small land shells on the
bluff south of the town. Mr.
Hodgkins kills a black duck
with red legs & toes, black webs
with a peculiar red & white
bill, unknown to me (no '42)
white on the wings. Also
a young *Mareca Americana*.
The former duck is very com-
mon here but very shy. Eyes
with white iris. Found sphag-
num in blossom.

Oct. 28. Get some good shells
from west side of Amaknak
including *Gemma mitis*, *Buc-*
ciliatum, 2 *Chrysodomus*.
Voluptopsis Beringi. *Modiola*
modiolus, *Saxicava arctica*.
Mytilus edulis. *Margarita*
pupilla. *Trichotropis insignis*
many fine *Card. Laperousii* &c.

Nov, 17. Mr Bendel reports seeing a flock of *Lamprolaimas* and also with them a lot of the black duck with the bright yellow bulb on the bill. He sends me several *Harle-da glacialis* and the black duck with red toes & bill of which a head was sent before.

Dec 27. Found *Cynthia pygmaea* on the beach. Animal of *Macoma capitanea* in shell much softened two long smooth scarlet siphons one shorter than the other which was about $1\frac{1}{2}$ in too far gone to tell if papillous. Harrington gets a cuttle like that before mentioned *Argyrocinnus* beautiful pink & yellow inside.

Birds of

Plectrophanes nivalis (sh)
Proglodytes alascensis - (sh)
Leucosticte griseinucha -
Melospiza insignis (sh)
~~*M. undulata*~~
Lagopus albus (suspectus) (sh)
Pelidna maritima
~~*Bubo*~~ *Nyctea nivea*
Brachyotus Cassini
Nalaeetus leucocephalus (sh abd)
Aquila canadensis
Timunculus sparverius (sh)
Corvus carnivorus (sh)
Polysticta phellus
Harelda glacialis (sh)
 ?
Melanetta veloxina (sh)
Anas boschas
Lamprolaima Fischeri ?
Querquedula discors
Nelton carolinensis (sh)
Histrionicus torquatus
Mareca americana
Mergus americanus

Unalaska
 3529 Reported + seen - Snowbird.
 94-98, 100, 26, 249, 248. Wren
 245, 246, 248, 253 Finch
~~32-36~~, 250, 418 Sparrow
 32-36 293. Grouse
 38, 105-109, 37, 254. Sandpiper
 seen, also feathers & White owl
 30-31 Yellow owl
 297 seen plenty White headed eagle
~~297~~ 383 Golden eagle
 seen, 1 killed but lost. Sparrow hawk
 Reported? Larger Hawk
 Plenty around village Raven -
 223, 245, 278-9 Stellers eider
 296 Oldsquaw
 251 Yellownose Surf Duck
 142, ~~207-8~~ White winged coot.
 seen plenty, dead, in abundance Mallard
 21? Spectacles eider
 Reported Blue winged teal
 24 Green winged teal
 23, 304. Harlequin duck
 25 Bald pate
 302-3 Large green head - Merganser

Starck (Chica)

Petrol (Chica)

~~Butor~~ Bucephala americana

~~Pedilymbus~~ prodiceps? cooperi

Traculus violaceus (Sh)

Uria californica (Sh)

Phalaris cristatella? (Sh)

~~Phalaris~~ sp. Brachyramphus

Somateria spectabilis

Larus argentatus? leucopterus? (Sh)

Larus brachyrychus? (Sh)

Rissa? (Kotzebui? Sh)

Stercorarius

Passerculus (Unga?) sandvicensis

Hydrobata mexicana (Sh)

Diomedea sp

(Mormon arcticus + corniculatus)
(Sh) seen

Arenar gambellii?

Haematopus niger (Sh)

Niundo bicolor (Sh)

Zonotrichia fasciata (Sh)

Passerculus sp.

(Redfoot diver (Sh)]

(Sterna macrura (Sh)]

(Yellow legs (Sh)]

301

Blackheaded Duck

294

Grebe

291.

Shag

300.

Diver

292

Sea quail

224

Small diver

~~287-289~~ 319. Ender Duck

147

Large white gull

seen plenty Black tipped swallows

Dec seen. Gray gull

seen - Oct.

3

1 off shore - Tree swallow

28-29-99.

Ouzel

seen, rotten. Albatross

295.

Duck

22

Duck

Dec. 31. Is reported, feet yellow. bill flesh

Spring, seen & recognized

June abundant

" 1 two seen "

" 1 one " like Unga sp

Jan 23, 1872 - Bendel reports
an eider with top of head gray
cheeks green with some black
orange knob on bill, breast
orange brown, wings dark.
Paul Rapin recognizes the
Lampronetta from the figure
has seen it at St. Michael's
and rarely here but says
it is very shy. He disting-
uishes it perfectly from
the other eiders -

See plenty of small sand-
pipers.

The *Leucostictus* are getting
brighter plumage -

Capt. Hall finds a piece of
the pen of a squid four or
or five inches long and two
and a half wide, it must
have been of enormous size
find another piece of the
curious sinistral *Buccinum*-
like shell on W side Amaknak.

March 3, 1892 The larger sea ducks are leaving and becoming scarcer every day. The smaller ones still linger -

The sea gulls are said to breed on the rocky islets about May 1-10 and to hatch about June 1. The gulls are said to have a second brood in July-August -

Found on the inside of Amaknak a whole lower whorl with column of the Scaphella of which a worn apex was previously picked up & referred to ballast or whalers -

It is very like *S. magellanica* of a livid purplish white with 4-6 whorls very slender with three sharp points on the column

- B² stratum of soft sand rock -
- B³ " " coarse pebbles -
- B⁴ " " marine shells -
- B⁵ " " soft sand rock -
- B⁶ " " rounded pebble conglom -
- B⁷ stratum sandy soft rock
- B⁸ Coal, the thick layers

Coal Harbor, Ungava District.

April 2, 1872 -

Examine the formations on the west side of the Bay which contain lignite beds.

Find the cliff which is between five and six hundred feet high. Composed as follows - from top down

- A. Conglomerate of fine pebbles
- B. do of larger boulders
- C. 6 in thin friable sandy shales
- D. More like A
- E. Two feet very coarse do (The above take 200 ft)
- F. 4 in sandy shale vegetable remains very indistinct
- G. 40 ft of thin leaves of lignite aggregated into three series of 3 ft each & interleaved with clay

List of mollusca of Hecialaska

From Sitka fauna -

Urosalpinx sp.
Leda fossa?

Murex tenuis?

Placunanomia macrostoma

Hellia La Perousei

Modiola modiolus

Saxidomus squalidus

Entodesma saxicola

Macoma sp.

Machaca ptychodonta Dixon

Lerippes La Perousei

Carbium Nuttallii

Pygospio ~~flavum~~ ^{flavum}

Lepton sp.

Sapes *Stansburyi*

Stansburya sp.

Lucina tenuis

Cryptodon flexuosus

Buccinum cyanum

Chrysodomus livatus

Porine oregonensis

Volutoharpa ampullacea

Trichotropis cancellatus

Cancellaria modesta

Trophon rhipheus

" *multicostatus*

Cerithiopsis sp.

Acmæa patina

" *pelta*

" *mitra*

Sitka

fauna

Acmata persona

Cryptobranchia concentrica

~~Isis~~ *Puncturella falcata*

Purpura canaliculata

Littorina sitkana

Natica russa

Chiton marmoratus

Chiton Kennerlyi

Margarita inflata

Astoria gausapata?

Finnish Arctic fauna.

Macoma inaequalis -

" sp.

" *edentula* -

Serripes groenlandicus -

Cardium islandicum -

Moldia amygdala

" *thraceiformis*

" *lanceolata*

Mya sen praecisa

" *truncata*

Mytilus edulis

Saxicava pholadis &c

Venericardia borealis

Tridacna minuta

Modiolaria laevigata

Mytilus edulis

Acmaea testudinaria

Trichotropis borealis

Mesalia lactea

" *reticulata*

Velutina laevigata

Natica clausa

From Arctic

Fauna

Buccinum glaciale

" slender white ribbed

Margarita helicina

" large white eastern

Lacuna vineta

" sp

Bela sp.

Bela sp.

Admete sp.

Tornatina sp.

Odostomia sp.

Chrysodomus sp. - five revolving ridges

Chiton ruber

lineata

alba

Alentian

fauna

Macoma capitanea

" verrucata?

" sp

Rhynchonella sp

Tricbratula sp? pink (Magnusella)

Goldia striatula

Pecten rubidus

Panopaea sp. ? gemosa -

" " (another type)

Trichotropis insignis

Arepidula grandis

Acmæa sybaritica

Velutina coriacea

Chrysodomus coarse ridges

Buccinum Bueri

" sp yellow } var of Bueri

N. genus - sinistral

Scaphella sp.

Cancellaria sp.

Volutopsis Beringi

" sp.

Unalaska

fauna

Margarita? sp.

Pinctopus sp.

Buccinum kennebecum

.. Murexianus

Loligo? sp.

Small landshells

No Haliotis

Pisoidae a very few

Scalaris

Dentalia

Astarte

Bittium

Lio cyma

found d.r. in Indian by
Cerithiopsis 1 sp.

gravel, sand, &c in layers
of variable thickness, with
a good deal of pyrites &
peroxide of iron -

H Then 150 feet of sand-
stone so soft as to
be really sand & gravel
beds - without many
large stones -

I succession of beds
similar to G but none
of the coal exceeding
8 inches in thickness
and most of it much
jointed and with a
great deal of peroxide
& sulphuret of iron 200
ft -

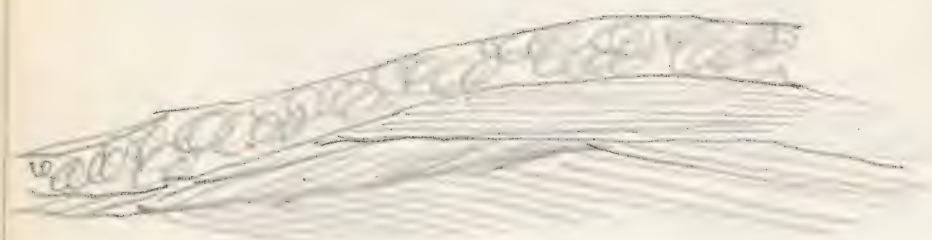
J. 4 ft bed of clay ironstone
with impressions of leaves
on beach

K - below low water there
is said to be another

Nos 384 a b c from this layer

coal seam -

The coal is lignitic and differs in quality in different localities - The best is to the south of the house where it has been opened by the Co. Here there are 3 veins of about a foot each in thickness composed of fine leaves but hard & solid except when weathered - between them are about ten feet of sand and gravel and over the middle one four feet of very friable blue shale over the upper one is a 4 in layer of sandy shale containing impressions of leaves of grasses hemlock - *Arctostaphylos*



Vaccinium sp., arborescens,
a fern? and some others
unknown to me, Laurel?
+ Shag berry - &c.

The coal is nowhere
more than 18 inches
thick in the clear - it
contains a good deal
of sulphur & iron &
splits very easily into
thin sheets - The roof
stone is unstable - All
the strata dip to the
westward from 5° to
 20° There are not many
folds but a few waves
The conglomerate appears
to have been a beach
formation while the land
was changing as many
of the upper lie uncon-
formably on each other
Above all are marine ter-
tiary which I have not

yet found in place, and
which are sandstone con-
taining a fossil *Crepidula*
and quite thin -

The mountains back in
the island are sandstone
according to Dix. The
E + SE shores of the Bay
appear to be diorite &
contain quantities of
quartz veins ^{most} many of
them chalcedonic. The
round island is of similar
rock -

Examine the *Aemacras*, now
April 5 in full season. The
milt is milky, milt sacs yellow
ish cream color. The ova, most
immature are aggregated into
small bunches in the ovary

They are spherical light yellow
^{all through} as they approach maturity
The yolk becomes yellow &

the outer parts, clearer with
a brownish tinge, at the same
time the little masses become
disintegrated and the ova
about twice the diameter
of those in the first condition.

Finally the most mature
exhibit the yolk yellow
with half of one side exhib-
iting an oval brownish
clear speck the nucleus
of the young shell, and
slightly concave. The

most mature are free float-
ing in the fluids of the ani-
mal close to the Anal pap-
illa and I have little doubt
that they are extruded by
the so-called renal orifice
though I have not yet
definitely traced the ovid-
uct. At no other point
in the ovine are mature
ova found. The color of

There are two small
red glandlike bodies one
on each side of the neck
which I have not seen in
alcoholic specimens.

There is but one renal sac
hence probably no renal
orifice. The funnel shaped
extension of the ovary runs
along the cloaca for some
distance but does not open
into it as far as I can discover
the renal sac is composed of
vermiform yellowish green or
olive blind caecum branching &
curling in every direction and
opening into a common duct
The young 1/50 of an inch long are
translucent brown disk shaped
no spiral nodules.

the distended ovum is orange
brown, darker towards the an-
terior end. There are no
capitopodal orifices. I could
not detect the renal orifice
(*A. patula* or *testudinalis*?) but
traced the mature ova through
a very tender duct or mem-
branous canal, to the left of
the Anal canal, close to
where the renal orifice must
be. There are two orange-
red prominences, behind the
head, one on each side of
the neck - can't imagine
their nature or office. have
seen nothing like them in al-
coholic specimens. Animal
yellow white except dark
tentacles and mantle spec
foot yellower & redder. Mus-
cles of buccal parts red.
Bill short. These grow very
large on the rocks here.

Small land shells - a Pisidium
H. pauper Fld. chersina Say. Astrea
Vitrina sp. - Papilla sp. conspecta?

Purpura myonensis

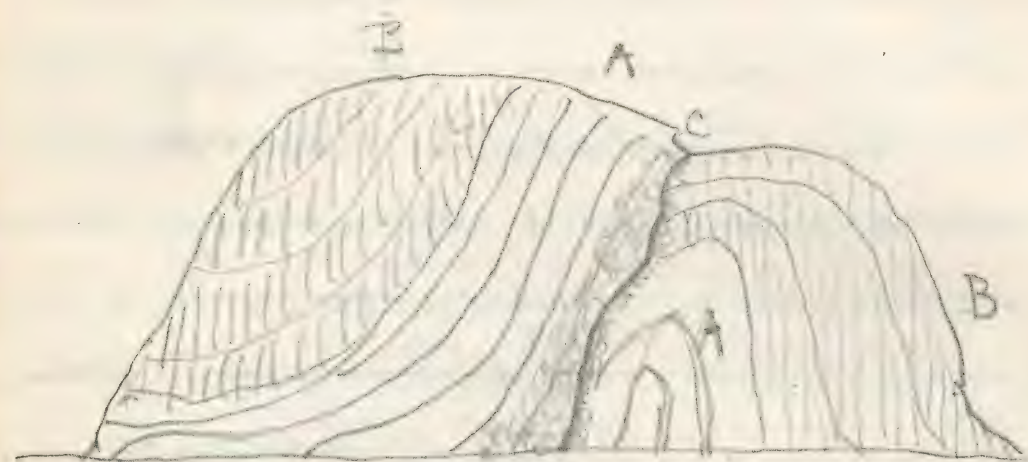
Add *Machaira patula* Dixon
Mytilus edulis + a

Standella - *Cardita borealis*
Lepton? sp.

Littorinas aggregated in large
masses copulating in trench April

8-10

Most of the shells here are
brighter colored & more
porcellaneous & thicker than
in Unalaska. *Chry. livatus*
very large - also *Mya trunc-*
cata, *M. Japonica* - *Card.*
Mittalhi - 2 *Macomas* *Soxi-*
domus squalidus - *Soxica*
arctica - (red siphon ends)
large annelids, sipunculæ
a *Margarita* like *helicina*
Littorina sitkana + *rudis*
Purpura canaliculata
Plac. macrochisma
Turris staminea var *rud-*
ata + dead *Astartes* all
very common on rocky
beaches at low water -
also rockeels not found
in Unalaska as far as
I have seen - *Buc. Kumi-*
cotti fragments and *Volutopis*
pretty good ones - also *Buc. mor-*
chianum - & fragment *glacialis*



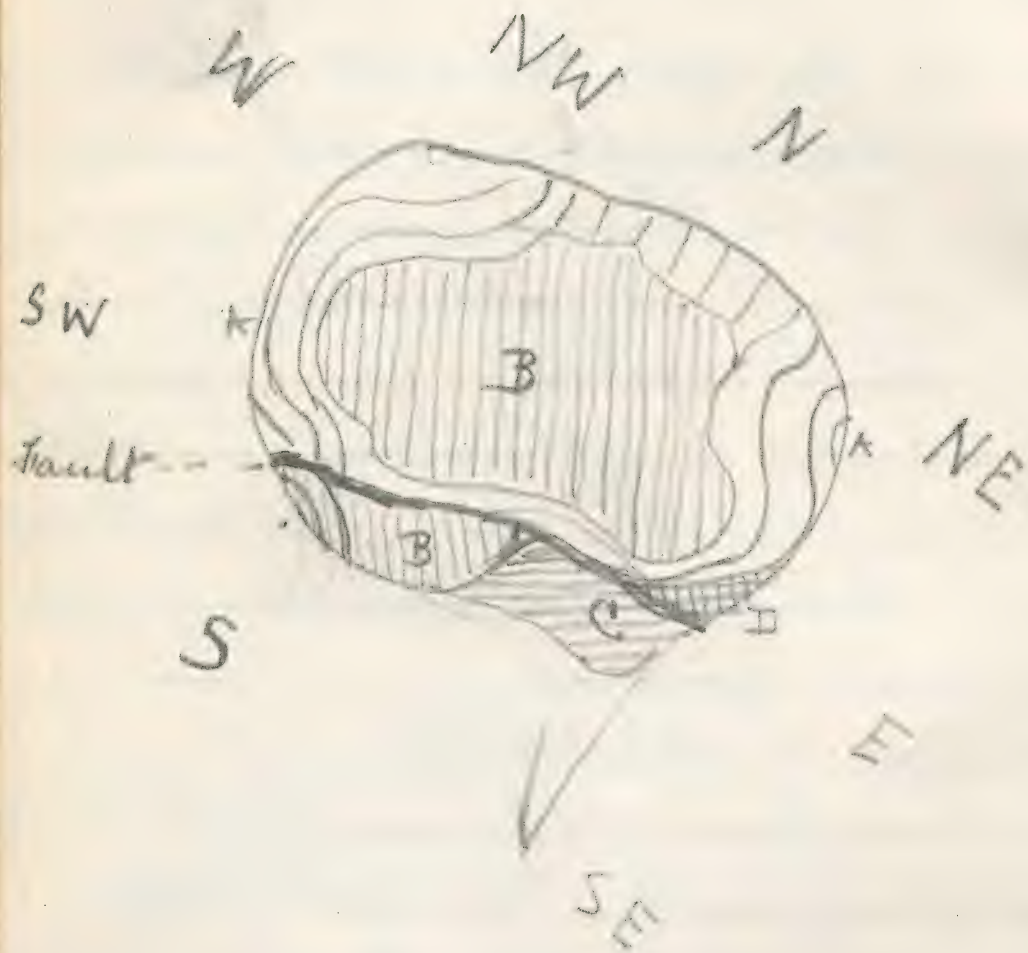
SW side



E side

Examine the geology of the Round Island thoroughly -

On the south and South west the predominant rock is a hard bluish sandstone (A) with a variable dip, (near the shore SW 64°) from nearly level to perpendicular. containing large clayey nodules and showing the effects of heat & great pressure - with a tendency to split into cubical or acute angled six sided blocks or fragments. In the south a fault in the strata occurs on each side of which (C) the rock is broken into very small pieces which are united together with a matrix of yellowish calcite and thin veins of chalcedonic and druse quartz. At the east of the

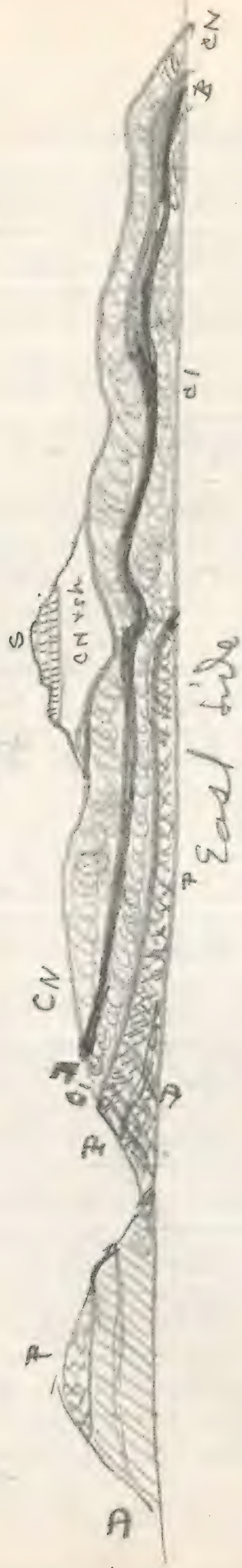


fault the same rock A occurs but the upper part of it which is softer (§) somewhat micaceous & weathers yellowish brown in some cases - is near the beach especially to the S + SSE -

Passing around this corner of the island we come upon a mass of greenish porphyrite obscurely bedded dipping SE 70° and passing under the sandstones at (□) where they are very rotten & much broken up, being evidently remains of the upper strata probably faulted down and exhibiting a foot or two of rotten broken argillite. The fault extends NE of of this to the beach and on the other side of it the sandstones appear again much folded.

The lower sandstone & appears
equivalent to the blue sandstone
of Mulato, the ^{beds across the harbor} upper ~~beds~~ to
the brown do of Mulato, the
porphyrite is to that of the
~~Porphyrite~~ Sopka - at Koyukuk.
The lower sdst. here (as there)
exhibits obscure vegetable re-
mains and its upper beds
(as at Ukukuk) leaves &c
but of different species from
those of the Passage. The upper
layer with crepidulas corres-
ponds to those containing oy-
sters & Mytili of Mulato -
though this is not repres-
ented on the island but
across the Harbor.

The upper beds (B) here are
simple continuations of the
lower (A) which passes in-
sensibly into them and
they are succeeded by the
lignite bearing series &



lower & upper leaf beds -
all represented in the Yukon
& Portage by the blue sandstone
while the gravel & conglomerate
etc & most of the lignite
are absent there -

April 10 - Examine the strata
on the East & South sides of
New Harbor South of the
lake portage -

The succession of the strata
appear as follows

1st (D) a black granitic rock
(no) not stratified but some
what bedded very obscurely

dipping (as do all the strata
here in general) $20^{\circ} - 30^{\circ}$ ESE

2 On top of this the porphyrite

(P) no) certainly lies con-
formably & forms the highest
crest of the hills of this peninsula

of the island - An obscure
bedding is perceptible in this
rock also but not a regular



Sides
New Harbor



T End of point appears like basaltic traps
Semicondummar and in places like met. sdst.

lar stratification.

3. Above this come beds ten to 30 feet thick of conglomerate beds (C) showing the effects of heat very strongly in some places reddened & appearing as if baked but distinctly stratified and very rotten where exposed.
4. next a bed from 3 to fifty feet thick of black sandstone (B) also much altered in places, but very distinct by stratified & in thin laminae - the plane surfaces of the laminae much harder than their broken edges and the result is a very bizarre weathering of fallen blocks. This stratum continues all around New Harbor being much thicker on the W side where it is also broken & the crevices filled with the chalice

domic & domy quartz before mentioned, in great quantities - It also weathers into a great number of small arches which give the small low round bluffs much the appearance of towers pierced for cannon from some points of view.

Above this stratum and 52 thicker where this is thinnest is another bed of conglomerate (C N No.) from 20 to 60 feet thick like No 3 but harder especially toward the top where some argillaceous bands occur. Several miles S E a square topped hill of this rock ~~was~~ is peculiarly formed apex to the presence of beds of sandstone like those

(5)



of which Round Island is mainly composed. This is the only patch of that rock visible on Unga to the East of New Harbor. It being elsewhere eroded. Fossil wood occurs on the beach some of it with tree do borings which suggests that the fossil wood found here was drifted on, ~~while~~ while the land was sinking just previous to the deposition of the marine tertiary sandstones.

Obtain some young *Volutharpa ampullacea* - on the muddy gravel under large stones on Round Island. All the young ones had opercula the adults had or had not in differently. The animal seemed unable to withdraw itself wholly within the shell. The

foot was broadly rounded before &
somewhat more acutely behind.
The color was waxy deepening
into orange on the sole &
sides of the foot - upper parts
blotched with black or dark
purple - a depression in
the middle anterior part of
the sole like a sucker

Foot smooth edges bulbous
with a faintly impressed
line on each side.

From a sponge dredged by
Capt Hall the same day Apr.
11th. a most remarkable
animal probably an annelid
was taken. It was of the
most brilliant scarlet throu-
ghout, the same as the living
sponge - It had no mouth
eyes or arms visible, The
back was rounded oval like
a Don's and transversely

rugose with arborescent hills -
Bottom of foot or ventral side
smooth & flat or transversely
striated - The sponge dichot-
omized in inextricable con-
fusion the whole forming
a mass of a peck or two
capacity growing in stones
in 3 fms. water.

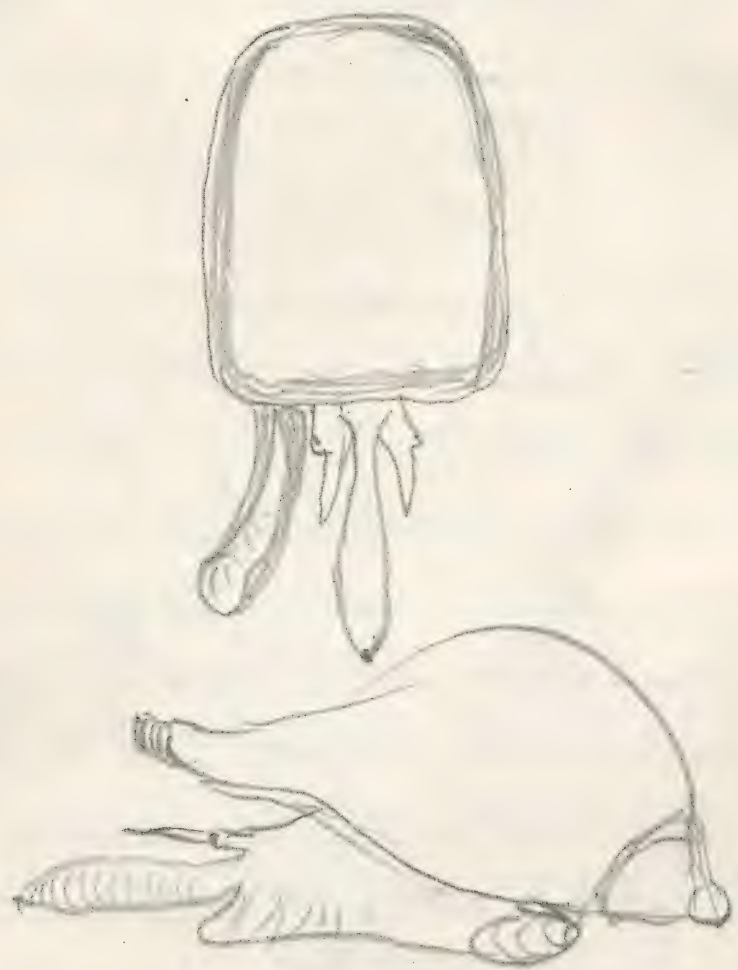
Harrington goes off to the E
side of the island and gets
a number of *Liccardium*
Laperousii, & *gronlandicum*
Maclura falcata, *Tellina capit-*
anea, One small living *Buc-*
cinum Kammicotti, animal
white splashed with black
& a chrysomelid opercu-
lum. *Macoma inconspicua*
Buc glaciale, *Cyanum* or
Volutharpa ampullacea
Tornatina sp. *Mod. verru-*
cosa and a *Macoma* with
a fine green epidermis



Bela + Trophon sp. dead &
Amphissa corrugata typical
1 broken specimens. Also
1 ditto Machaca patula
+ a lot of Echinadachnis
beside two stabshells -

April 16. Capt. Hall after a
number of unsuccessful at-
tempts obtains a specimen
living & perfect of the re-
markable sinistral buccinum
form of which fragments
have been obtained previous-
ly, here & at Malashka.

The operculum is peculiar
& dextral, so small as
not to cover the animal
when contracted to its
greatest ability. The
Mantle is very large
extending some distance
over ^{the} whorl on the right
side of the aperture. Its



edge is smooth and entire. That portion adjacent to the left hand side of the aperture is yellow white on the extreme edge, and inside of that deep yellow or even brownish but so densely laced with black streaks as to appear blackish. The other edge is yellowish white with a deep yellow stain inside the margin. The siphon is rather short, blackish with a pale margin. The bottom of the foot is orange with a black margin. The sides are blackish with pale flecks, & yellowish toward the interior of the shell. They are rather rough and semi-granulated. The head is small black, the tentacles short

black with white tips
The eyes on their outer
vulbosities. The proboscis
is large, inflated & black.
The animal appeared
muscular but sluggish
This specimen was less
highly colored than the
Unalakka fragments
thicker and had a
projection like a tooth
opposite the anterior
end of the columella.
This may be abnormal
The lip was thickened
with purple & white
The columella ditto.
It was in deep water
hard bottom - near
Round Island in the
entrance of New Harbor
Unqa Island.



Cattle fish found by Harrington
April 26 and another by Hall a
week after.

Tips of arms & tail gone -
7A, Length 6 ft. 8 in. end to end.
Length of body 3 ft. 10 in.
width of enormous 1 ft. 1 1/2 in.

Arms 26 - 30 in.

Arms mandibular, ends gone - cylin-
drical 30 in. Arms tubular
ends gone - ends alternate in
two rows, on slender peduncles
with chitinous ring around the
cup. Mandibles retracted into
a short yellow puckered muzzle
which was included in a longer
plain proboscis like tube. Color
whitish with red dots as usual
a raphe exists on the outside
of the arms darker than
the rest in color. Capt
Hall's specimen though mu-
tated was over 7 feet long.
Beak, tongue & pieces of arms saved




May 8 - Found another larger
 & more perfect posteriorly
 Body 61 in
 To top of tentacles 67 in
 To upper edge flaps 33 $\frac{3}{4}$ in
 To widest part of " 22 in
 Width there of " 25 $\frac{1}{2}$ in
 Between attachments of do 3 $\frac{1}{2}$ ant-
 Post Tentacle incomplete 43
 Arm " 23 $\frac{1}{2}$ in
 Head unattached to collar.

Color reddish in fine dots
 on white ground tail acute
 by pointed - eye bluish black
 an inch across the opening
 which is not covered with skin
 & has rudimentary lids. Gills
 2 yellowish five layers
 obliquely transverse. gizzard
 of yellowish muscles laid
 like a coil of spun yarn
 Numerous folds around the neck
 flaps 3 times as wide as body above.



Stomatoxys bicolor & *Naema*
topus niger were observed
 but no specimens obtained
 at Unalakleet about June 1,
 the latter was obtained with
 eggs considerably incubated
 at Popoff Island Shuma-
 gins June 20, also *Stema*
macrura with eggs & *Larus*
leucopterus. a considerable
 number of specimens never
 less injured, of *Suntelion* & *Buc.*
Kennicottii were obtained in
 the grass on the Popoff Id. Sand Pt.
 also *Mytilus edulis*, *Strebella* sp.
Mod. modiolus, *Acmaca patina*
nitra & *persona*. *Card. Mittellii*
Chry. hiatus, *Argobuccinum argenteum*
Voluptas Beirigi. *Maema* sp.
Card. Laperousii, *Buc. cyaneum*
 & *glaciale* & "sand cakes in abun-
 dance. The west shore of
 Popoff island is of black basaltic
 lava which also breaks through

 Egg cases of *Argo-*
buccinum oregonensis, single
erect on rocks Parallelopipedal

and partly overflows the hori-
zontal sandstones on the
E shore of N Unga greatly
metamorphosing those to
the north of the lava mass
while those to the south
are little changed even
close to the lava.

June 24, visit the north end
of Popoffsky To examine into
the fossiliferous layer reported
by Mr. Hodgkins. Find them
well exposed on the high bluff
about the middle of the north
side. The fossiliferous layer
is quite thin running from
6 in to two feet and corre-
sponds in position with layer
C of the coal bluffs in
the North Harbor of Unga.
It is however separated from
the conglomerate strata
above & below by a layer
from ten to twenty five

feet thick of sand hardly hard
enough to be called sandstone
above the conglomerate
which is baked & altered by
heat is a bed three hun-
dred feet thick of lava
and volcanic breccia
differing every few feet
horizontally and vertically
in its exact composition
the lower part seems
more like a cooked con-
glomerate of pieces of
porphyrite with a basaltic
matrix while the
upper portion is composed
in part of sharp frag-
ments of porphyrite &
dolerite cemented by a thin
glossy vitreous lava -

This completes the key to
the system of tertiary
beds of the north part

of the territory. The strata
had a dip of ten to 15 degrees
to the eastward and were
conformable - the lowest
visible was the conglomerate
layer corresponding
to the previously mentioned
layer denominated Φ is
the Coal Harbor beds.

The fossiliferous layer con-
tained principally oys-
ters like *Ovirinica* ^{with} *Crep-*
idula, *Galeus*, *Pecten*
Modiola + *modiolaia* and
some few indeterminate
gastropods, one like
a *Drillia* another some-
what like a *chrysoto-*
nus - all except the
oysters rather scarce
many oysters were bored
by *Chiona* and the shells
of all kinds were in pretty

good preservation & mixed
with fragments of vegetable
matter much of it carbon-
ized & some silicified.

The matrix was a sand
rock sometimes argilla-
ceous enough to approach
shale in character.

Saukborn Harbor - Nagai - 20.

Aug. 1872

The geological characters of the
middle portion of this island are
as follows.

The strata at the surface are
metamorphic sandstones & slates
generally dipping to the west-
ward but arranged in waves
having their longer axis about
NNE & SSW, sometimes faulted
but in general pretty regular
and occasionally an exposure
perpendicular to the axis
shows the wave complete &
unbroken. The slates & sandstones

are intermingled in beds of irregular thickness & lithological character as in unaltered mixed strata of the same nature. Most of them are exceedingly hard. They are continuously exposed in several directions to the light of thickness of 6000 feet or more but the average breadth of the waves with average is not less than 5000 feet. The lines of stratification are distinctly marked. Above these slates & conformable with them, in a few localities mostly much elevated or on the western edge of the Island, are some of the Uya sandstone of the lower series. These are to be seen above

Porpoise Harbor, and near
+ at Pinnacle Point. The
rocks off the Pinnacle are
of coarse sandstone, and
cut up by lava veins in
every direction but not
much metamorphosed.
No fossils have been
found though carefully
sought for. Further
south, on the shores
of Eagle Harbor and
the western part of
Stalmouth Harbor sim-
ilar rocks are exposed
much faulted & contor-
ted at the latter locality.
At the head of the two
latter bays, mountain
masses of granite are
exhibited, but the soil and
luxuriant growth of herbage
prevented me from tracing
out the connection between



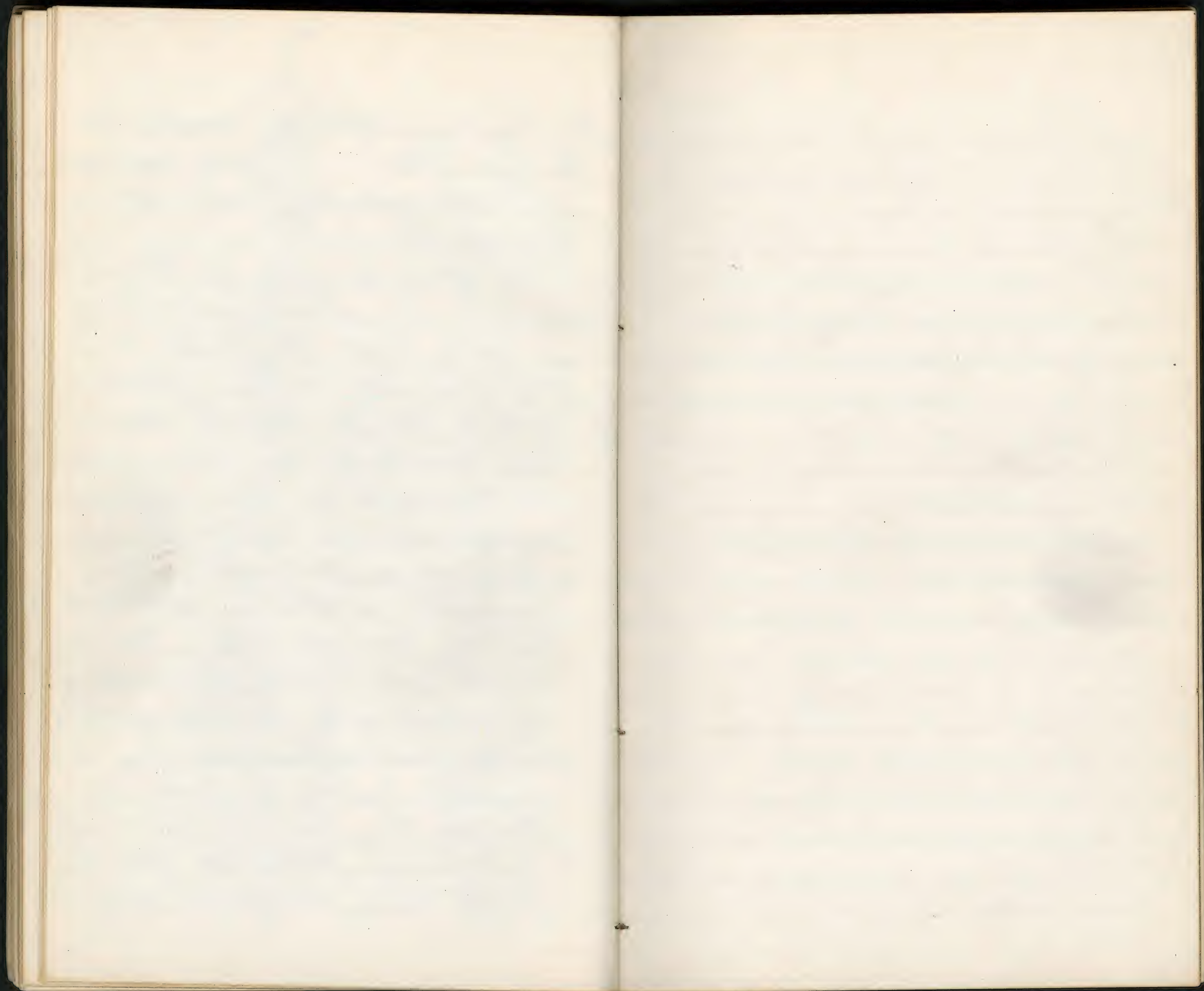
a Ugva talus
b met. slates & shales
c part of Nagai



a metamorphic sandstones & shales
b granite
c middle part of Nagai

the metamorphic rocks & the granite. The two series are apparently not conformable.

The general course trend &c of the stratified rocks is similar to that in the islands to the westward Unga, Popoff &c. In Unalakka we have in the interior the alluvial conglomerates & shales lying unconformably on gneiss with a surrounding of porphyrites. In Unga we have them lying unconformably on the porphyrites and broken up by injected lavas. Here in Nagai they lie on the metamorphic slates &c for the first time conformably.





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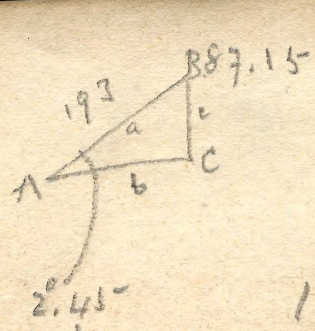
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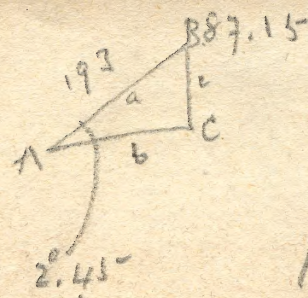
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Take Sanychup + Bluff

27.2533 ✓
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